Pushing the Envelope			
2006 Mathematics			
Grade Level Expectations			
Delaware Mathematics			
Grade 5			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	DE	MA.5. 3.3.8	Students will develop Geometric Reasoning and an understanding of Geometry and Measurement by solving problems in which there is a need to recognize, construct, transform, analyze properties of, and discover relationships among geometric figures; and to measure to a required degree of accuracy by selecting appropriate tools and units. Students will be able to: Find the mass of an object to the nearest 1/2, 1/4, or 1/10 of a unit
Chemistry (pgs. 25-41)	DE	MA.5. 3.3.7	Students will develop Geometric Reasoning and an understanding of Geometry and Measurement by solving problems in which there is a need to recognize, construct, transform, analyze properties of, and discover relationships among geometric figures; and to measure to a required degree of accuracy by selecting appropriate tools and units. Students will be able to: Find the volume of an object
Physics and Math (pgs. 43-63)	DE	MA.5. 1.1.9	Students will develop Numeric Reasoning and an understanding of Number and Operations by solving problems in which there is a need to represent and model real numbers verbally, physically, and symbolically; to explain the relationship between numbers; to determine the relative magnitude of real numbers; to use operations with understanding; and to select appropriate methods of calculations from among mental math, paper-and-pencil, calculators, or computers. Students will be able to: Develop the meaning of percent as a ratio of a number out of 100
Pushing the Envelope			
2006 Mathematics			
Grade Level Expectations			
Delaware Mathematics			
Grade 6			
Activity/Lesson	**State**	**Standards**	

Physics and Math (pgs. 43-63)	DE	MA.6. 1.2.2	Students will develop Numeric Reasoning and an understanding of Number and Operations by solving problems in which there is a need to represent and model real numbers verbally, physically, and symbolically; to explain the relationship between numbers; to determine the relative magnitude of real numbers; to use operations with understanding; and to select appropriate methods of calculations from among mental math, paper-and-pencil, calculators, or computers. Students will be able to: Multiply fractions by other fractions using physical models, ratio/rate tables, and arrays
Pushing the Envelope			
2006 Mathematics			
Grade Level Expectations			
Delaware Mathematics			
Grade 7			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	DE	MA.7.2.3.2	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Evaluate an algebraic expression for a given value of the variable
Chemistry (pgs. 25-41)	DE	MA.7.2.3.2	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Evaluate an algebraic expression for a given value of the variable

Chemistry (pgs. 25-41)	DE	MA.7.3.3.5	Students will develop Geometric Reasoning and an understanding of Geometry and Measurement by solving problems in which there is a need to recognize, construct, transform, analyze properties of, and discover relationships among geometric figures; and to measure to a required degree of accuracy by selecting appropriate tools and units. Students will be able to: Determine the volume and surface areas of cylinders and prisms
Physics and Math (pgs. 43-63)	DE	MA.7.1.2.5	Students will develop Numeric Reasoning and an understanding of Number and Operations by solving problems in which there is a need to represent and model real numbers verbally, physically, and symbolically; to explain the relationship between numbers; to determine the relative magnitude of real numbers; to use operations with understanding; and to select appropriate methods of calculations from among mental math, paper-and-pencil, calculators, or computers. Students will be able to: Use ratios, proportions and percents to solve contextualized problems
Physics and Math (pgs. 43-63)	DE	MA.7.2.1.2	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Interpret rate of change in tables and graphs based on the context of the problem
Physics and Math (pgs. 43-63)	DE	MA.7.2.2.1	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Connect different representations of the same situation to one another using tables, graphs, and rules

Physics and Math (pgs. 43-63)	DE	MA.7.2.3.2	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Evaluate an algebraic expression for a given value of the variable
Pushing the Envelope			
2006 Mathematics			
Grade Level Expectations			
Delaware Mathematics			
Grade 8			
Activity/Lesson	**State**	**Standards**	
Chemistry (pgs. 25-41)	DE	MA.8. 3.3.4	Students will develop Geometric Reasoning and an understanding of Geometry and Measurement by solving problems in which there is a need to recognize, construct, transform, analyze properties of, and discover relationships among geometric figures; and to measure to a required degree of accuracy by selecting appropriate tools and units. Students will be able to: Compare the relationship between the volume of different shapes with the same base and height (e.g., cylinder and cone, prism and pyramid)
Chemistry (pgs. 25-41)	DE	MA.8. 3.3.2	Students will develop Geometric Reasoning and an understanding of Geometry and Measurement by solving problems in which there is a need to recognize, construct, transform, analyze properties of, and discover relationships among geometric figures; and to measure to a required degree of accuracy by selecting appropriate tools and units. Students will be able to: Compare the surface area of rectangular prisms which have the same volume but different dimensions

Physics and Math (pgs. 43-63)	DE	MA.8. 2.2.1	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Write an equation given the tabular or graphic form of a linear problem
Physics and Math (pgs. 43-63)	DE	MA.8. 2.2.2	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Analyze the interrelationships among tables, graphs, and equations of lines, paying particular attention to the meaning of intercept and slope in the context of the problem
Pushing the Envelope			
2006 Mathematics			
Grade Level Expectations			
Delaware Mathematics			
Grade 9 (Grade 9)			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	DE	MA.9.2.2.7	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Determine if a given value is a solution to a given equation or inequality

Chemistry (pgs. 25-41)	DE	MA.9.2.2.7	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Determine if a given value is a solution to a given equation or inequality
Physics and Math (pgs. 43-63)	DE	MA.9.2.1.1	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Explain slope as a rate of change between dependent and independent variables
Physics and Math (pgs. 43-63)	DE	MA.9.2.2.7	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Determine if a given value is a solution to a given equation or inequality
Physics and Math (pgs. 43-63)	DE	MA.9.2.3.2	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Convert between equivalent forms of linear functions
Pushing the Envelope			
2006 Mathematics			
Grade Level Expectations			
Delaware Mathematics			

Grade 10 (Grade 10)			
Activity/Lesson	**State**	**Standards**	
Chemistry (pgs. 25-41)	DE	MA.10.3.3.3	Students will develop Geometric Reasoning and an understanding of Geometry and Measurement by solving problems in which there is a need to recognize, construct, transform, analyze properties of, and discover relationships among geometric figures; and to measure to a required degree of accuracy by selecting appropriate tools and units. Students will be able to: Find missing dimensions of a shape given the area, volume, or surface area
Physics and Math (pgs. 43-63)	DE	MA.10.2.2.3	Students will develop Algebraic Reasoning and an understanding of Patterns and Functions by solving problems in which there is a need to recognize and extend a variety of patterns; to progress from the concrete to the abstract using physical models, equations, and graphs; to describe, represent, and analyze relationships among variable quantities; and to analyze, represent, model, and describe real-world functional relationships. Students will be able to: Convert flexibly among relationships expressed in tables, graphs, and equations for exponential and quadratic functions